

Pre-AP Geometry Date_____ 6.4 Assignment Page 1
Rectangle, Rhombii & Squares (pp 347-350)

Omit 14, 19, 22, 23

1. What is your name?

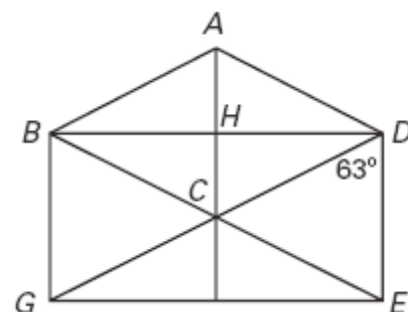
In the diagram shown, BDEG is a rectangle and ABCD is a rhombus. Find the measure of the indicated angle.

2. $\angle ABC$

3. $\angle BCG$

4. $\angle DEG$

5. $\angle DGB$



Decide whether the statement is true or false. Decide whether the converse is true or false. If both statements are true, write a biconditional statement.

6. If a quadrilateral is a parallelogram, then it is a rhombus.

7. If a quadrilateral is a square, then it is a rhombus.

8. If a quadrilateral is a rectangle, then it is a rhombus.

9. If a rhombus is a square, then it is a rectangle.

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Find the length or angle measure.

10.

WXYZ is a square.

$$WX = 1 - 10x$$

$$YZ = 14 + 3x$$

$$XY = \underline{\hspace{1cm}} ? \underline{\hspace{1cm}}$$

11.

WXYZ is a rhombus.

$$m\angle X = 24(10 - x)^\circ$$

$$m\angle Z = 6(x + 15)^\circ$$

$$m\angle Y = \underline{\hspace{1cm}} ?^\circ \underline{\hspace{1cm}}$$

12.

WXYZ is a rectangle.

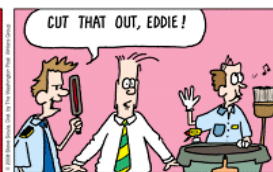
$$\text{Perimeter of } \triangle XYZ = 24$$

$$XY + YZ = 5x - 1$$

$$XZ = 13 - x$$

$$WY = \underline{\hspace{1cm}} ? \underline{\hspace{1cm}}$$

HOME AND AWAY



BY STEVE SICULA

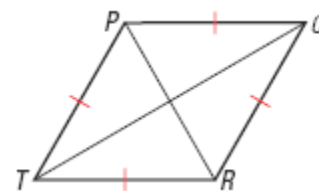
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13. Given: PQRT is a rhombus.

Prove: \overline{PR} bisects $\angle TPQ$ & $\angle QRT$. \overline{TQ}

bisects $\angle PTR$ & $\angle RQP$.

Plan for proof: To prove \overline{PR} bisects $\angle TPQ$ & $\angle QRT$, first prove that $\triangle PRQ \cong \triangle PRT$.



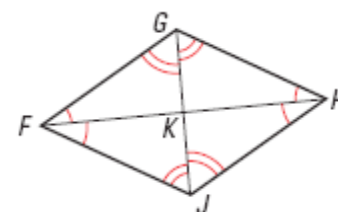
$FGHJ$ is a \square .

14. Given: \overline{FH} bisects $\angle JFG$ & $\angle GHJ$.

\overline{JG} bisects $\angle FJH$ & $\angle HGF$.

Prove: FGHJ is a rhombus.

Plan for proof: Prove $\triangle FJH \cong \triangle FHG$ so $\overline{JH} \cong \overline{GH}$. Then use the fact $\overline{JH} \cong \overline{FG}$ & $\overline{GH} \cong \overline{FJ}$.



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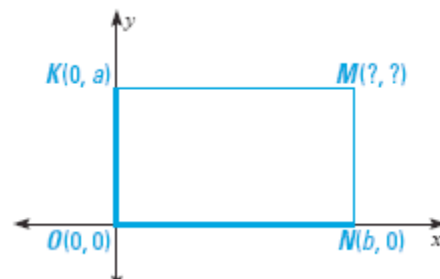
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Complete the coordinate proof.

Given: $KMNO$ is a rectangle.

Prove: $\overline{OM} \cong \overline{KN}$

Because $\angle O$ is a right angle, place $KMNO$ in the coordinate plane so O is at the origin, \overline{ON} lies on the x -axis and \overline{OK} lies on the y -axis. Let the coordinates of K be $(0, a)$ and let the coordinates of N be $(b, 0)$.



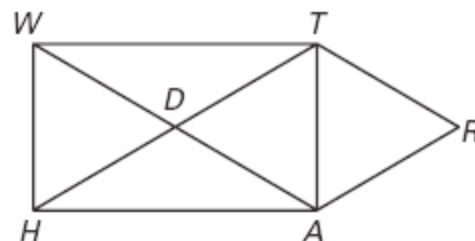
15. What are the coordinates of M ? Explain your reasoning.

16. Use the distance formula to show that $\overline{OM} \cong \overline{KN}$.

Write a two-column or a paragraph proof.

17. Given: WHAT is a \square .
 DART is a rhombus.

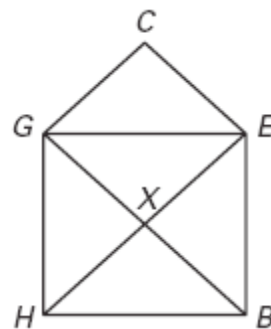
Prove: WHAT is a rectangle.



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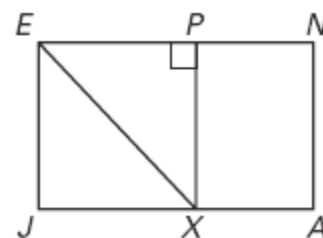
18. Given: $\triangle GEC \cong \triangle GHX$
 $GEBH$ is a \square .

Prove: $GEBH$ is a rhombus.



JANE is a parallelogram.
 19. Given: $JXPE$ is a parallelogram.
 $\overline{XP} \perp \overline{EN}$

Prove: JANE is a rectangle.



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20. _____ In rectangle ABCD, $AB = 7x - 3$, $CD = 4x + 9$, what is the value of x ?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

21. _____ In $\square KLMN$, $KM = LN$, $m\angle KLM = 2xy$, & $m\angle LMN = 9x + 9$. Find the value of y .

- A. 5
- B. 9
- C. 10
- D. 18
- E. Cannot be determined.

Review.

Decide whether enough information is given to determine that $\triangle ABC \cong \triangle DEF$. (Chapter 4 Section 3)

22. $\angle C \cong \angle F$, $\overline{AC} \cong \overline{DF}$, $\overline{BC} \cong \overline{EF}$

23. $\overline{AB} \cong \overline{BC}$, $\overline{BC} \cong \overline{CA}$, $\angle A \cong \angle D$

24. $\overline{EF} \cong \overline{BC}$, $\overline{DF} \cong \overline{AB}$, $\angle A \cong \angle E$

25. $\angle B \cong \angle E$, $\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EF}$

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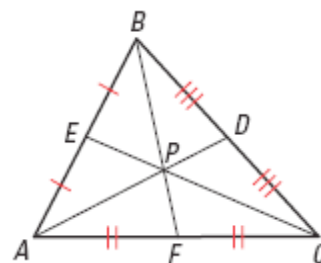
Use the information given in the diagram to fill in the blanks. (Chapter 5 Section 3)

26. If $AP = 1$, what is PD ?

27. If $PC = 6.6$, what is PE ?

28. If $PB = 6$, what is FB ?

29. If $AD = 39$, what is PD ?



30. Write an indirect proof to show that there is no quadrilateral with four acute angles. (Chapter 6 Section 1)

